

5 Claims

1. A powered clamping chuck for machine tools, in particular for lathes, having a chuck body (1) and several clamping jaws (4) that are arranged movably in radial jaw guides (3) of the chuck body (1) and are displaceable together, by means of a drive, radially with respect to the chuck axis (A), the drive including key bars (5) that are slidably guided transversely to the chuck axis (A) for displacement of the clamping jaws (4) in the chuck body (1) and each comprise a tooth set (7) that is in engagement with a corresponding counter-tooth set (8) on an associated clamping jaw (4); a positioning mechanism being provided that comprises a releasing bolt (P) mounted rotatably in the chuck body (1) and a releasing key (S) that can be coupled to the releasing bolt (P) in order to displace, by way of a rotation of the releasing bolt (P), the key bar (5) or a coupling attachment (5b), comprising the tooth set (7), of the key bar (5) parallel to the chuck axis (A) between an upper working position and a lower jaw changing position in which the tooth set (7) of the key bar (5) is pulled back out of the counter-tooth set (8) of the clamping jaw (4) and the latter can be removed radially from the chuck body; and a locking device being provided which locks the releasing key (S) on the releasing bolt (P) and permits disengagement of the releasing key (S) only in the working position of the key bar (5),
- wherein the key bar (5) has locking means that allow a rotation of the releasing bolt (P) out of the rotational position corresponding to the lower jaw changing position of the key bar (5), into the rotational position corresponding to the upper working position of the key bar (5), if the tooth set (7) of the coupling attachment (5b) is in engagement with the counter-tooth set (8) of an associated clamping jaw (4), and that otherwise prevent rotation of the releasing bolt (P) into the rotational position corresponding to the upper working position.
2. The powered clamping chuck as defined in Claim 1, wherein the key bars (5) each have a key bar body (5a) and, held thereon, a coupling attachment (5b) on which the tooth set (7) is provided, an eccentric bolt (12) coupled to the releasing bolt (P) being rotatably mounted in a transverse bore (13) of the key bar body (5a) and carrying a radially projecting extension (14) that, upon a rotation of the eccentric bolt (12), comes into engagement with a corresponding countersurface

5 (19) of the coupling attachment (5b) in order to displace the coupling attachment (5b) between the upper working position and the lower jaw changing position.

3. The powered clamping chuck as defined in Claim 2, wherein the locking means include a snap-lock pin (21) that is held slidably in a passthrough bore (22) which extends, parallel to the direction of motion of the coupling attachment (5b), from the tooth set (7) of the coupling attachment (5b) through the coupling attachment (5b) and the key bar body (5a) to the transverse bore (13) in which the eccentric bolt (12) is arranged; and the locking means furthermore comprise a pusher element (23) that is arranged slidably in a bore (24) of the eccentric bolt (12) and is pushed outward by a compression spring element (25) braced in the bore (24); the bore (24) of the eccentric bolt (12) and the passthrough bore (22) in which the snap-lock pin (21) is held being located opposite one another in a predefined rotational position of the eccentric bolt (12), so that the pusher element (23) is pushed by the preload force of the compression spring element (25) into the passthrough bore (22) and pushes the snap-lock pin (21) out of the coupling attachment (5b); a rotation of the eccentric bolt (12) back into the starting position, and thus a return of the coupling attachment (5b) to its working position, then being prevented by the engagement of the pusher element (23) into the passthrough bore (22); and the snap-lock pin (21) being prevented from emerging from the key bar (5) by the counter-tooth set (8) of a clamping jaw (4) that is mounted on the key bar (5) and closes off the passthrough bore (22), so that the pusher element (23) remains outside the passthrough bore (22) and the eccentric bolt (12) can be rotated back into its starting position.

30 4. The powered clamping chuck as defined in Claim 3, wherein the pusher element (23) is of beveled or rounded configuration in the region of its end surface (23a) that comes into contact with the snap-lock pin (21).

5. The powered clamping chuck as defined in any of the foregoing claims, wherein the coupling attachment (5b) possesses on its underside a guide extension (11) that engages into a corresponding guide bore (17) of the key bar body (5a).

- 5 6. The powered clamping chuck as defined in Claim 5, wherein the coupling attachment (5b) is braced against the key bar body (5a) by way of compression springs (15), optionally via pusher pieces (16), and is pushed toward the clamping jaw (4).
- 10 7. A key bar having a key bar body (5a) and, held thereon, a coupling attachment (5b) on whose upper side a tooth set (7) is provided, an eccentric bolt (12) being rotatably mounted in a transverse bore (13) of the key bar body (5a) and carrying a radially projecting extension (14) that, upon a rotation of the eccentric bolt (12), comes into engagement with a corresponding countersurface (19) of the coupling attachment (5b) in order to displace the latter between an upper working position and an lower jaw changing position,
- 15 wherein the key bar (5) has locking means that allow a rotation of the releasing bolt (P) out of the rotational position corresponding to the lower jaw changing position of the key bar (5), into the rotational position corresponding to the upper working position of the key bar (5), if the tooth set (7) of the coupling attachment (5b) is in engagement with the counter-tooth set (8) of an associated clamping jaw (4), and that otherwise prevent rotation of the releasing bolt (P) into the rotational position corresponding to the upper working position.
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- 25 8. The key bar as defined in Claim 7, wherein the locking means include a snap-lock pin (21) that is held slidably in a passthrough bore (22) which extends, parallel to the direction of motion of the coupling attachment (5b), from the tooth set (7) of the coupling attachment (5b) through the coupling attachment (5b) and the key bar body (5a) to the transverse bore (13) in which the eccentric bolt (12) is arranged; and the locking means furthermore comprise a pusher element (23) that is arranged slidably in a bore (24) of the eccentric bolt (12) and is pushed outward by a compression spring element (25) braced in the bore (24); the bore (24) of the eccentric bolt (12) and the passthrough bore (22) in which the snap-lock pin (21) is held being located opposite one another in a stipulated rotational position of the eccentric bolt (12), so that the pusher element (23) is pushed by the preload force of the compression spring element (25) into the passthrough bore (22) and pushes the snap-lock pin (21) out of the coupling attachment (5b); a rotation of the eccentric bolt (12) back into the starting position, and thus a
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5 return of the coupling attachment (5b) to its working position, then being
prevented by the engagement of the pusher element (23) into the passthrough
bore (22); and the snap-lock pin (21) being prevented from emerging from the
key bar (5) by the counter-tooth set (8) of a clamping jaw (4) that is mounted on
10 the key bar (5) and closes off the passthrough bore (22), so that the pusher
element (23) remains outside the passthrough bore (22) and the eccentric bolt
(12) can be rotated back into its starting position.

9. The key bar as defined in Claim 8, wherein the pusher element (23) is of beveled
or rounded configuration in the region of its end surface (23a) that comes into
15 contact with the snap-lock pin (21).

10. The powered clamping champ as defined in any of Claims 7 through 9, wherein
the coupling attachment (5b) possesses on its underside a guide extension (11)
that engages into a corresponding guide bore (17) of the key bar body (5a).

20 11. The key bar as defined in Claim 10, wherein the coupling attachment (5b) is
braced against the key bar body (5a) by way of compression springs (15),
optionally via pusher pieces (16), and is pushed toward the clamping jaw (4).